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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/510,152 | 10/05/2004 | Kia Silverbrook | YU175NPUS | 6673 |
| 24011 | 7590 | 09/17/2008 | EXAMINER | |
| SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, 2041 AUSTRALIA | | | AL HASHIMI, SARAH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2853 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/510,152 | Applicant(s) SILVERBROOK, KIA | |
| | Examiner Sarah Al-Hashimi | Art Unit 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 June 2008.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 3-10 is/are pending in the application.
 - 4a) Of the above claim(s) 7-9 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,3-6,10 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1,3-6,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuji (US 6,371,598) in view of Silverbrook (US 6,227,654).

Fujii teaches:

Claim 1: a substrate (fig 16 #1002); and a plurality of nozzle arrangements that is positioned on the substrate (fig 16 #1021), each nozzle arrangement comprising a nozzle chamber structure that is positioned on the substrate and that defines a nozzle chamber from which ink is to be ejected (fig 16 #1006); an ink-ejecting mechanism that is operatively arranged with respect to the nozzle chamber structure, the ink-ejecting mechanism including at least one moving component that is displaceable to generate a pressure pulse within the nozzle chamber to eject ink from the nozzle chamber (fig 16 #1005); an actuator that is positioned on the substrate and that has at least one working member that is of a material having a coefficient of thermal expansion such that the, or each, working member is capable of substantially rectilinear expansion and contraction when heated and subsequently cooled (col 14 lines 22-24 "the pressure generating means may alternatively comprise a resistance heating element disposed in

Art Unit: 2853

ejection chamber 6”); and an energy transmitting means that interconnects the, or each, moving component and the, or each, working member so that energy generated by the, or each, working member as a result of expansion and subsequent contraction of the, or each, working member is transmitted to the, or each, moving component resulting in displacement of the, or each, moving component and generation of said pressure pulse (col 14 lines 18-26 “it is also possible to provide a piezoelectric element as the pressure generating means on the side of diaphragm 5 opposite ejection chamber 6. In this case an appropriate voltage is applied to the piezoelectric device to deform the diaphragm. The pressure generating means may alternatively comprise a resistance heating element disposed in ejection chamber 6 such that the pressure ejecting the ink is created by the thermal expansion of the ink induced by the resistance heating element”), wherein, in each nozzle arrangement, the ink ejection port is arranged in the nozzle chamber so as to be a distal end portion of the moving component with respect to the working member and energy transmitting means (fig 16 #1021 is at a distal end).

Claim 10: at least one printhead integrated circuit as claimed in claim 1 (fig 1 #10).

Fujii does not teach but Silverbrook teaches:

Claim 1: each actuator includes one elongate working arm that has a fixed end portion and a working end portion, the working arm being configured to define part of a resistive heating circuit (abs “actuator having a first conductive arm and a second substantially non-conductive arm, the conductive arm expanding upon electrical resistive heating to thereby cause the actuation of the thermal actuator”).

Art Unit: 2853

Claim 3: the substrate includes a silicon wafer substrate (fig 3 #4) and a CMOS drive circuit layer positioned on the silicon wafer substrate (fig 3 #17).

Claim 4: the working arm is also electrically connected to the drive circuitry layer so that a current pulse can be set up in the working arm to displace the working end portion relative to the fixed end portion upon heating and subsequent cooling of the working arm as a result of the current pulse (col 6 lines 24-28 "The expansion works against the nitride portion 12 of the arm resulting in a partial "uncoiling" of the actuator 7 which in turn results in a corresponding movement of the paddle 6 resulting in the ejection of ink from the nozzle chamber 2").

Claim 5: each nozzle chamber structure includes nozzle chamber walls and a roof positioned on the nozzle chamber walls, the roof defining the ink ejection port from which ink is ejected upon generation of said pressure pulse (abs "a trough having side walls and an exposed roof the trough being substantially filled with fluid; a paddle vane located within the trough and offset from one wall when the paddle vane is in a quiescent position; an actuation mechanism attached to the paddle vane such that, upon activation of the actuation mechanism, the paddle vane is caused to move towards the one wall, resulting in an increase in pressure in the fluid between the one wall and the paddle vane, resulting in a consequential ejection of fluid via the exposed roof").

Claim 6: each ink-ejecting mechanism includes one moving component in the form of an ink-ejecting member that is positioned in the nozzle chamber and is displaceable towards and away from the roof to generate said pressure pulse (abs "an actuation

Art Unit: 2853

mechanism attached to the paddle vane such that, upon activation of the actuation mechanism, the paddle vane is caused to move towards the one wall, resulting in an increase in pressure in the fluid between the one wall and the paddle vane, resulting in a consequential ejection of fluid via the exposed roof").

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Fujii to incorporate each actuator includes one elongate working arm that has a fixed end portion and a working end portion, the working arm being configured to define part of a resistive heating circuit, the working arm is also electrically connected to the drive circuitry layer so that a current pulse can be set up in the working arm to displace the working end portion relative to the fixed end portion upon heating and subsequent cooling of the working arm as a result of the current pulse, each nozzle chamber structure includes nozzle chamber walls and a roof positioned on the nozzle chamber walls, the roof defining the ink ejection port from which ink is ejected upon generation of said pressure pulse, each ink-ejecting mechanism includes one moving component in the form of an ink-ejecting member that is positioned in the nozzle chamber and is displaceable towards and away from the roof to generate said pressure pulse and the substrate includes a silicon wafer substrate (fig 3 #4) and a CMOS drive circuit layer positioned on the silicon wafer substrate as taught by Silverbrook to reduce manufacturing costs and improve print function.

Response to Arguments

3. Applicant's arguments with respect to claims 1,3-6,10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Al-Hashimi whose telephone number is 571 272 7159. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272 2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either PAIR or Public PAIR. Status information for unpublished applications is available through PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SA/

/STEPHEN D. MEIER/
Supervisory Patent Examiner, Art Unit 2853